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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,801	10/22/2003	Stuart S. Goldstein	P2002J095 (US2)	5620

7590 09/10/2007  
ExxonMobil Research and Engineering Company  
P.O. Box 900  
Annandale, NJ 08801-0900

EXAMINER
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SINGH, PREM C

ART UNIT	PAPER NUMBER
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1764

MAIL DATE	DELIVERY MODE
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09/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/690,801	Applicant(s) GOLDSTEIN ET AL.	
	Examiner Prem C. Singh	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 July 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

Amendment to claims 1, 18, and 20 and cancellation of claims 5 and 9 is noted.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 6-8, and 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golem et al. ("Conversion of Fixed-Bed Reformers to UOP CCR Platforming Technology") in view of Dufresne et al. (US 5,854,162).

The Golem reference discloses a process in which a fixed-bed catalytic reformer unit is revamped so that at least one of the fixed-bed reactors is converted to a moving-bed reactor. All fixed-bed reactors may be converted to moving bed reactors. The moving bed reactor requires catalyst feeding and recovery facilities. A catalyst regenerator is also added to the unit. By performing this revamping, the resulting product from the reactor has improved quality and yield as compared to the product from the fixed-bed unit. The revamped unit is operated at lower pressures (i.e., 100 psi vs. 300 psi or 690 kPa vs. 2068 kPa). The catalyst used in the process contains platinum on a support. The catalyst is believed to be the same as claimed. The revamp in the manner disclosed by Golem is believed to result in a unit that is operated as claimed. See the entire document, especially pages 2, 5, 6, 7, 8, 10, and figure 9.

The Golem reference does not disclose a catalyst regeneration facility that is not integrated with the reactor from which the catalyst is removed.

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The Dufresne reference discloses a reforming process in which the catalyst is regenerated offsite. See column 3, lines 31-44 and column 4, lines 16-37.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the Golem reference by using an offsite regenerator as suggested by Dufresne because this would allow better control of the two principle regeneration steps.

Regarding the pressure conditions, the revamping as disclosed by Golem results in lower pressures used in the process. The actual pressures used would be based on the desired composition of the product and one having ordinary skill in the art would adjust such pressures accordingly.

### ***Response to Arguments***

Applicant's arguments filed 07/17/2007 have been fully considered but they are not persuasive.

The Applicant argues that Golem does not disclose or suggest the present conversion method in which *each* fixed bed reforming reactor of the original fixed-bed unit is converted to a moving bed reactor to form a unit with no integrated regenerator. In the Golem Hybrid conversion, the moving bed reactors are retained and so a key feature of the present claims, namely, that *each* fixed bed reactor is replaced by a moving bed reactor is not met. In addition, a regenerator for the moving bed reactor is installed (Golem, page 7). In the full CCR Platforming conventions (second and third

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Golem options), all the former fixed bed reactors are replaced, admittedly, but in these cases, a fully integrated, dedicated regenerator is installed.

The Applicant's argument is not persuasive because Golem discloses a full CCR platforming process in which all the fixed beds are replaced by moving beds where a new CCR regenerator is added (See page 8, paragraph 2 and 3). Golem also discloses that a CCR regenerator (2,000 lb/hr) typically needed for the process will cost nearly \$2,000,000 extra (See page 11, last two lines; page 13, bullet 3).

Dufresne provides offsite regeneration methods for any used reforming catalyst (See column 3, lines 31-35). Dufresne discloses, "The process of the invention is preferably such that the used catalyst is from a continuous and/or semi-regenerative type reforming processes, i.e., a continuous type, semi-regenerative type or mixed type process." (Column 4, lines 16-19). Dufresne adds, "Regeneration carried out in accordance with the prior art in continuous (CCR) type processes can not ensure perfect homogeneity of the combustion or oxychlorination treatment for all the catalyst particles. These catalytic reforming processes comprising onsite regeneration do not allow the whole of the catalyst to be assessed since each sample taken from the unit (production and regeneration) is localized and not representative of the whole of catalytic mass." (Column 3, lines 10-20). Dufresne goes on to discuss the advantages of off-site regeneration over onsite regeneration (See column 3, lines 30-35; column 4, lines 25-37). Thus, the high cost of the regenerator in Golem process and numerous advantages of off-site regeneration over onsite regeneration disclosed by Dufresne

gives enough motive to one skilled in the art to replace onsite regenerator disclosed by Golem by an off-site regenerator disclosed by Dufresne.

The Applicant argues that none of the Golem options makes the same conversion steps "to result in a unit that is operated as claimed".

The Applicant's argument is not persuasive because Golem's full CCR process modified by incorporating Dufresne off-site regenerator results in a unit that operates as claimed.

The Applicant argues that Golem's "phased approach" is not a disclosure of – non-integrated regeneration.

The Applicant's argument is not persuasive because Golem discloses three alternative approaches: Hybrid CCR; Full CCR; and New, Second Generation CCR platforming processes. A full CCR or Second Generation CCR modified with the off-site regenerator disclosed by Dufresne is a disclosure of non-integrated regeneration as claimed by the Applicant.

The Applicant argues that the disclosed advantages of Dufresne's off-site regeneration do not motivate the use of non-integrated regenerators for use with units having no integrated regenerator.

The Applicant's argument is not persuasive as discussed above.

The Applicant argues that Dufresne did not speak to use with units of unknown type such as those now claimed and which are not taught by Golem, namely units with only moving bed reactors but no integrated regenerator.

The Applicant's argument is not persuasive because Dufresne regeneration process applies to all the reactors, including moving bed reactors, and Golem teaches moving bed reactors as claimed by the Applicant.

With respect to claim 20, the Applicant argues that none of these types (Dufresne's) is a shared regenerator and there is no suggestion that a regenerator from another CCR type unit might be used and so, the Examiner's position is not factually supported by the reference disclosure.

The Applicant's argument is not persuasive because Dufresne's off-site regenerator processes catalysts from a continuous and/or semi-regenerative type reforming processes, i.e., a continuous type, semi-regenerative type, or mixed type processes (See column 4, lines 16-19). If Dufresne's regenerator is processing catalysts from different processes, it is definitely a shared-regenerator.



***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is 571-272-6381. The examiner can normally be reached on MF 7:00 AM-3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PS/083007



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